Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Objection to the Specification

The Examiner has objected to the title of the invention, contending the title is not descriptive. The title of the invention has been amended herein to address the Examiner's concerns.

Accordingly, withdrawal of the objection to the title of the invention is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 22-32, 36-37, 41-42, 44-47, 56-63 and 65 stand rejected as being unpatentable over Fenton (US 5,619,555) in view of Bateman (US 5,884,032). Claims 33-35, 38-40, 43, 48-55 and 64 stand rejected as being unpatentable over Fenton and Bateman in further view of Smith (US 5,923,327). Withdrawal of the rejections is respectfully requested for at least the following reasons.

A. Claims 22-32, 36-37, 41-42, 44-47, 56-62 and 65

Claim 22 has been amended herein to state that the at least one application residing in the first server generates, on behalf of the first endpoint device, the display data for at least one portion of the screen. Here, "on behalf of" is intended to mean that the first server does the generation of display data that would normally be expected to be done by the first endpoint device. It has further been clarified in claim 22 that the non-dedicated communication path is for supplying the display data from the server to the first endpoint device. Claim 22 has been further amended to state that the display screen has an array of individually addressable pixels (basis for this can be found in the second paragraph on page 12 of the description as originally filed), and to state that the display data is pixel-level display data.

In this respect, the phrase "pixel-level display data for at least one portion of the screen" specifies more clearly than original claim 22 the direct relationship between the display data and the display hardware of the first endpoint device, in that the display

data received by the endpoint device is intended for direct transfer to the display hardware with minimal or no intervention. The directness of the relationship between the display data and the display hardware is apparent in various parts of the description, e.g., see the third line from the bottom of page 6, the third line from the bottom of page 15, and the final three lines of page 10.

The term "display data" for this purpose is used throughout the description, e.g., see line 1 of the final paragraph on page 7, line 1 of the second paragraph on page 8, line 3 of the second full paragraph on page 9, together with the part labeled 41 in Figure 3, the parts labeled 51 and 53 in Figure 4 and the parts labeled 45, 63 and 65 of Figure 5. The direct relationship between the display data and the display hardware is also illustrated in the first paragraph on page 8, from which it is apparent that there is a direct correspondence between items of the display data and the pixels of the screen 49.

Lines 5 and 12 to 13 of the main paragraph on page 3 also refers to "pixel information" sent from the server to regenerate the screen of the display device, implying a direct correspondence between the display and the display hardware. Further reference to pixel-level information can be found at the fourth line from the bottom of page 7; at lines 5 to 7 of page 8; at line 1 of page 22; at lines 4 and 6 of page 27: and the first to third lines of the "Customisation" section on page 40.

Basis for the introduction of the wording relating to the supply of display data from the server 14 to the first endpoint device 10 over the network 12, can be found at page 7, line 7, and page 3, lines 7 to 9 and 16 to 19. The non-dedicated communication path is described further on page 15. Basis for the introduction of the term "generates" in claim 22 can be found, for example, in the second full paragraph on page 7, line 2 of the third full paragraph on page 8, the second full paragraph on page 9 (and the parts labeled 51 and 53 in Figure 4), the second full paragraph on page 10 (and the part labeled 63 in Figure 5), and the part labeled 41 in Figure 3.

Fenton discloses a graphical user interface for an audio conferencing system, whereby a participant in the audio conference can set up and control their participation in the audio conference by using a graphical user interface at a workstation. With reference to Figure 1, the various workstations 16, 18 are linked to a central server 12 via a local area network 14, allowing data and control information relating to the audio conference to be controlled centrally.

Whilst it is conceivable that certain types of information sent from the central server 12 to a remote workstation 16 or 18 might affect what is displayed on that workstation, it is certainly not disclosed that the central server 12 generates pixel-level display data on behalf of the remote workstations for displaying on the screen of that workstation. It is also not disclosed in Fenton that an integrated audio and display device is provided, there instead being separate telephone (22, 24) and workstation (16, 18) apparatus.

Bateman discloses a system and method for integrating Internet services with live Automatic Call Distribution (ACD) agents. Referring to Figure 1 of Bateman, a customer at a customer premise 2 is put in contact with an agent at an agent workstation 12 via a call center 24. The call center 24 handles requests for help from customers, enabling call back of customers and live connections with agent workstations 12. An additional component in Bateman is the WWW server 28 which is used to integrate Internet services into the functionality of the system, allowing the customer to access on-line information at their workstation 4, and in particular a "Live Help" HTML interface 54 which acts as a link into the call center system 24, 28 (see column 5, line 23 to column 6, line 65). The WWW server 28 sends information, in the form of HTTP responses, to the customer workstation 4, and this information can indirectly affect, in a manner controlled completely by the customer workstation 4, what is displayed on the screen of the customer workstation 4. Bateman does not disclose that the WWW server 28 generates, on behalf of the customer workstation 4, pixel-level display data which is used for display on the customer workstation 4.

In addition, Bateman relates to and exclusively describes a system in which a telephone device (8, 14) is provided separately to the processing device including display screen (4, 18). There is no integrated device having an audio transducer and a display screen.

As mentioned above, neither of these cited documents teaches the generation of pixel-level display data at a central server for display, more or less directly, on the screen of a remote device. At least some of the cited documents disclose the sending of HTTP data or applets from a central server to a remote device, and these HTTP data or applets contain information and instructions which are processed at the local device for generating display data at the local device.

The actual generation of pixel-level display data, i.e., the data which is actually transferred to the display hardware for display, is generated locally at the device in each of the prior art documents. This becomes a problem when the local device is resource limited or "thin", and it is this problem which the present invention is seeking to address.

As has now been clarified in amended claim 22, the solution proposed by the present invention is to arrange for a remote server 14 to take over the task of generating pixel-level display data for at least one portion of the screen of the resource-limited device. The pixel-level display data generated at the server is then supplied from the server 14 to the endpoint device 10 for display.

Although this arrangement has been motivated by the desire to reduce the processing and hardware demands on a resource-limited or "thin" device, this solution has other technical advantages which are not limited to its use with resource-limited devices. By moving the pixel-level display data generation function away from a particular device to a remote server, this opens up the possibility of using and sharing the pixel-level display data with a plurality of devices in a variety of novel and useful ways.

For example, as described starting at the first full paragraph on page 9 of the present description with reference to Figure 4, it becomes possible to display a common image on a plurality of devices such that a plurality of users can update the same image in real time by "drawing" on the touch-sensitive screen of their device; this is referred to in the present application as a "scribblepad".

As another possibility, described starting at the bottom of page 9 with reference to Figure 5, it becomes possible for pixel-level display data to be sent from one user's device to another user's device; for example, the displayed images may represent a menu illustrating various items which are available for purchase by the caller from the called party (see the second full paragraph on page 10).

Other benefits of an arrangement according to the present invention are described in the first paragraph on page 38, and elsewhere in the description.

In all of these applications it is important that the pixel-level display data itself that is transferred, rather than information such as HTTP which is used by the end device to generate the pixel-level display data with little or no control by the device

sending the information. This has implications, for example, when using a touch-sensitive screen where it is vital that the registration between the image and the sensor array is known. For example, the first sentence of the "Customisation" section on page 40 notes how the present invention allows every pixel on the device's display to be modified remotely; this simply is not possible with any of the prior art.

All of the above-described technical advantages are derived from the main difference over the cited prior art, which is the generation and control of pixel-level display data at a remote server on behalf of the endpoint device. Neither this solution, nor any indication of the technical problem motivating the solution, is taught or suggested by any of the cited prior art documents, whether alone or in combination.

It is submitted that claim 22 is both novel and inventive over the cited prior art. Similar arguments apply to independent claim 60. Accordingly, withdrawal of the rejection of claims 22 and 60 is respectfully requested.

Claims 23-32, 36-37, 41-42, 44-47, 56-59, 61-62 and 65 directly or indirectly depend from either claim 22 or claim 60 and, therefore, can be distinguished from the cited art for at least the same reasons.

Accordingly, withdrawal of the rejection of claims 23-32, 36-37, 41-42, 44-47, 56-59, 61-62 and 65 is respectfully requested.

B. Claims 33-35, 38-40, 43, 48-55 and 64

Claims 33-35, 38-40, 43, 48-55 and 64 depend from either claim 22 or claim 60. As discussed above, claims 22 and 60 are distinguishable from Fenton and Bateman. Smith relates a system and method that improves search and display features of a graphical user interface. Smith, however, has not been found to make up for the above discussed deficiencies of Fenton and Bateman. Thus, claim 22 and 60 also are distinguishable from Fenton and Bateman in view of Smith.

Claims 33-35, 38-40, 43, 48-55 and 64 depend from either claim 22 or claim 60 and, thus, can be distinguished from Fenton, Bateman and Smith for at least the same reasons. Accordingly, withdrawal of the rejection of claims 33-35, 38-40, 43, 48-55 and 64 is respectfully requested.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

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